NASA Exploration Safety Study

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Authorization

- Letter from Mike Griffin dated 21 October 2005

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TIFF (LZW) decompressor
are needed to see this picture.

Background and Scope

- NASA must undertake a top-to-bottom review of safety and mission assurance.
- It is time to review our policies, procedures, and personnel to see how we can better ensure the safety of the remaining shuttle flights. In turn, this will better prepare us for new challenges to be presented by the exploration adventure to come.

Schedule

- Study will be conducted in two Phases
  - 1st Phase: Data gathering initiated and will continue through 31 January
  - 2nd Phase: Gap analysis and Reporting scheduled from 31 January through 30 April
- 1st Phase will include visits to majority of NASA Centers, HQ and GRC completed

Study Organization

- Study conducted under Scott Pace's PA&E organization
- NASA Study Director, Bill Claybaugh
- Study Team Lead, Joe Fragola

Phase 1 Team

- Bill Claybaugh, NASA PA&E
- Joe Fragola, Valador, Ben Franzini Valador
- Paul Dye/Joe Cavallaro, MOD
- “Vegas” Kelly, Crew
- Keith Hudkins, NESC
- Greg Rodgers, Dep. Chief Engineer

Phase 1 Intended Outputs

- Current “on the ground” situation, Concept of Operations, CONOPS
- Envisioned CONOPS for Exploration
- Identification of gaps
- Identification of KSAs to address gaps
- Selection of Phase 2 core team and support to address gaps.

Structure of Phase 2

- 3 month “ESAS-like”concentrated effort
- Core team of 10+ phase 1 members
- Core team co-located for duration at NASA hq. Primarily civil servants
- Support team 5-10 at hq about 1 week per month
- Additional NASA and contractor support and additional visits as required

Outputs of Phase 2

- Current CONOPS
- Exploration CONOPS
- Gaps
- Suggested action plans for closure
- Data to support findings, and findings to support recommendations
- No recommendation without data and findings.

Preliminary Insights

- Personnel Risk in the transition from Shuttle ISS era to Exploration Era. How do we maintain safety?
- Need to integrate all crew safety risks to same level playing field, include BioMed and MMOD.
- Need to educate designer intuition in role of uncertainty in the establishment of design margins.

Uncertainty in Design

- Risk assessment is the identification of areas of design uncertainty
- Risk analysis is the allocation of design margins to address the uncertainties identified
- Risk management is the continual adjustment of margins to buy down design uncertainty to an acceptable level as the program matures